

Ex. I

1 UNITED STATES DISTRICT COURT
2 NORTHERN DISTRICT OF CALIFORNIA
3 SAN JOSE DIVISION
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7 IN RE iPhone APPLICATION) CASE NO.:
8 LITIGATION,) 5:11-MD-02550-LHK
9 _____)
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12 **CONFIDENTIAL**
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16 VIDEOTAPED DEPOSITION OF JEFFREY G. BOLAS
17 LOS ANGELES, CALIFORNIA
18 WEDNESDAY, JANUARY 16, 2013
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23 REPORTED BY:
24 CHRISTY A. CANNARIATO, CSR #7954, RPR, CRR
25 JOB 57342

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Wednesday, January 16, 2013
8:54 a.m.

Deposition of Jeffrey Bolas, taken on
behalf of Plaintiffs, held at the offices
of Gibson, Dunn & Crutcher,
2029 Century Park East, Los Angeles,
California, before Christy A. Cannariato,
CSR #7954, RPR, CRR.

A P P E A R A N C E S

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I N D E X

EXAMINATION BY	PAGE
MR. KAMBER	7

EXHIBITS	
EXHIBIT DESCRIPTION	PAGE
Plaintiffs' Exhibit 61	
Jeffrey G. Bolas' Responses and Objections to	
Subpoena to Produce Documents, Information,	
or Objects or to Permit Inspection of Premises	
in a Civil Action	8
Plaintiffs' Exhibit 62	
Declaration of Jeffrey Bolas in Support of	
Apple Inc's Motion for Summary Judgment	8
Plaintiffs' Exhibit 63	
"Overview of Account for period ending	
December 31, 2012, BOLAS 000038-39	24
Plaintiffs' Exhibit 64	
Plaintiff's Notice of Subpoenas	33

EXHIBITS

EXHIBIT DESCRIPTION	PAGE
Plaintiffs' Exhibit 65	
Appendix A, Summary of Forensic Analysis of Plaintiffs' Claims	256

QUESTIONS INSTRUCTED NOT TO ANSWER

214:22

1 on all -- on a 29-page document without sort of
2 going through it, and it doesn't --

3 MR. KAMBER: Well --

4 MR. JESSEN: -- seem like a fair
5 question.

6 Q. BY MR. KAMBER: Let me rephrase. I'm
7 not meaning to ask it as an unfair question in any
8 way. I believe it was something as a review he
9 already did.

10 You've stated that "this declaration is
11 based upon my own personal knowledge except where
12 otherwise indicated."

13 You said that that is an accurate
14 statement.

15 A. (Nods head up and down.)

16 Q. So, to your knowledge, there is no place
17 in this document that is not based upon your
18 personal knowledge that it's not indicated that it's
19 not based upon your personal knowledge?

20 MR. JESSEN: Objection. That was like a
21 double or triple negative.

22 Q. I will rephrase.

23 The statement that you read from
24 paragraph 1, you've stated that that statement is
25 true. As you sit here, is there anywhere -- is

1 there anywhere in this document in which that
2 statement is -- for which that statement would not
3 be true?

4 A. I think that everything that is covered
5 in my declaration involves forensic analysis
6 performed directly by me or people working at my
7 direction or whose work I directly reviewed or
8 verified in a way that I can personally testify to
9 the accuracy of the facts herein. And I'm
10 comfortable with the statement in paragraph 1.

11 Q. Who are the -- in your answer to your
12 last question you said "performed directly by me or
13 people working at my direction." I will deal with
14 the first part of that sentence first.

15 Who worked at your direction on this
16 report?

17 A. On the report?

18 Q. Or on the information contained in the
19 report.

20 A. A team of forensic examiners in multiple
21 locations worked on this matter in the preservation
22 and analysis of data from various iPhones from
23 plaintiffs.

24 Q. How many people?

25 A. There were a total of four forensic

1 examiners, including myself.

2 Q. What are their names?

3 A. There's me. There is Daniel Blank,
4 James Hung, and a Jason Novak.

5 Q. For each could you spell their name and
6 what office they worked from.

7 A. I work in the New York office. My name
8 is Jeffrey Bolas, J-e-f-f-r-e-y B-o-l-a-s.

9 Daniel Blank, D-a-n-i-e-l B-l-a-n-k,
10 also works in the New York office.

11 James Hung, J-a-m-e-s H-u-n-g, works out
12 of the Stroz Friedberg Los Angeles office.

13 And Jason Novak, J-a-s-o-n N-o-v-a-k,
14 works out of our Chicago office.

15 Q. What are the number of hours that each
16 of those examiners worked on this report?

17 A. I don't know that offhand.

18 Q. Is there any document that would have
19 that record?

20 MR. JESSEN: I'm just going to object.
21 He said a number of hours they worked on the report.

22 Q. Okay.

23 A. Thank you.

24 Q. That's a fair -- okay. Of the four
25 examiners, how many hours did they work on this

1 project regarding this litigation?

2 A. I don't have information to break that
3 down.

4 Q. Does that information exist?

5 A. Yes.

6 Q. And where would it exist?

7 A. It would exist in billing or invoicing
8 information.

9 Q. Would that bill have been provided to
10 your client in this case?

11 MR. JESSEN: Objection. Calls for
12 speculation.

13 Q. Do you know who your client is in this?

14 A. Yes, our client is Gibson Dunn.

15 Q. Okay. Do you know if Gibson Dunn was
16 provided a bill for the services of Stroz Friedberg
17 in this matter?

18 A. I believe, yes, we bill our clients for
19 our services.

20 Q. Did you see the bill in this matter?

21 A. I have -- yes, I have.

22 (Plaintiffs' Exhibit 63 marked for
23 identification.)

24 Q. Mark this document as Plaintiffs'
25 Exhibit 63. Thank you.

1 Q. Turning to your CV for a moment again.
2 Feel free to refer to it for this question. Have
3 you ever -- in a prior version of your CV, you
4 listed preservation work you did in Mexico. It's
5 not in this version. It's in a prior version of
6 your CV.

7 A. Is that a question?

8 Q. Yeah. The question is: Do you recall
9 that in a prior version of your CV that it listed
10 work -- preservation and harvesting work in Mexico
11 from a server in scores of laptops and removal of
12 storage devices in a high stakes civil litigation?

13 A. I recall the work. I don't specifically
14 recall all case work that was mentioned in every
15 version of the CV, but I'm familiar with the
16 reference.

17 Q. Okay. Do you know why that would not be
18 in the CV that you have?

19 A. We revise the CV over time as I do more
20 case work. And, you know, I make an effort to try
21 to keep it, you know, relatively current and
22 relevant. And that was a case that I worked in, I
23 believe, 2006. So it was really a matter of it kind
24 of falling off the shelf.

25 Q. And when you say relevant, do you mean

1 relevant to this engagement?

2 A. Excuse me. I do not mean to suggest
3 that the CV is designed to be relevant to any
4 particular engagement but merely to provide a fair
5 and accurate representation of my technical
6 experience and past case work, with some
7 understanding that things several years old are
8 going to be less emphasized than more recent case
9 work.

10 Q. On how many occasions have you provided
11 expert testimony?

12 A. On three occasions I have testified in
13 court.

14 Q. And how many times have you signed or
15 been the primary or otherwise been the primary
16 author of an expert report?

17 A. Of written testimony of some form?

18 Q. Yes.

19 A. Probably -- probably a dozen times,
20 approximately.

21 Q. And how many times have you given
22 deposition?

23 A. This is my first deposition.

24 Q. In addition to the three occasions that
25 you have listed on your CV as having provided oral

1 testimony, could you provide the other occasions
2 that you provided written testimony or report as you
3 just answered?

4 A. Are you asking for an inventory of
5 those?

6 Q. Yes.

7 A. No, I don't know that I could off the
8 top of my head. One of the complications is that we
9 often in case work will write a written report or
10 prepare a document and don't always know whether
11 it's filed or not. So I would have to go back and
12 determine for each such instance whether or not
13 there's a publicly-available document. So I'm not
14 sure I could answer that right now.

15 Q. Do you recall any of them?

16 A. Yes, I do.

17 Q. Which ones do you recall?

18 A. Well, again, there are some -- this is
19 some case work I have done that I believe is filed
20 under seal, so I'm uncertain whether I am -- whether
21 I'm permitted to allude to it or not.

22 Q. How many of them were filed under seal?
23 I'm not asking -- again, let's be clear. I'm not
24 asking you at this point --

25 A. Yep.

1 company Cellebrite, which allows us to make a
2 logical as well as full physical preservations of
3 data from iPhones.

4 Cellebrite also has a software package
5 that allows you then to analyze and generate reports
6 summarizing data, different kinds of data that are
7 recovered, either active or deleted, from iPhones
8 and other mobile devices. It's a generalized tool
9 that can be applied to many kinds of mobile devices
10 and not just iOS devices.

11 Other tools that we use include EnCase,
12 which is, as I described before, a widely-accepted
13 and common forensic software package for the
14 analysis of binary data, which allows us to analyze
15 the file system from an iOS device and look at the
16 contents of the various files plists and databases
17 that might exist on an iOS system.

18 As well as to search through the
19 physical memory of the phone, if we have a physical
20 preservation, to find deleted content as well.

21 Another very common tool that we use is
22 a software package called Epilogue, which is a
23 SQLite database record recovery tool, which allow us
24 to recover records from SQLite databases that may
25 have been deleted. And that's important for iOS
activity and iOS forensic analysis, because there

1 are many databases on iPhones and other iOS devices
2 that are maintained in SQLite format.

3 Q. During your time -- during your time at
4 Stroz, what proportion of your overall engagements
5 that you've been involved with are iPhone related?

6 A. It's increased over time. Clearly, you
7 know, it's a newer technology, and the adoption of
8 iPhones as a common computing platform has increased
9 significantly between, you know, 2007 when they were
10 first introduced, and essentially there were none of
11 them in the public, until today. So the answer to
12 that question changes over time.

13 I would say that it's an increasing --
14 increasing percentage of the cases that we handle do
15 involve, if not exclusively, at least in part,
16 mobile devices, including iOS.

17 Q. Okay. Of the total, understanding your
18 testimony that it has increased over time, of the
19 total engagements proportionally of the total
20 engagements you have been involved with, --

21 A. Mm-hmm.

22 Q. -- how many of them dealt with -- how
23 proportionately -- I'm not asking you a memory test
24 of how many -- but proportionally, what proportion
25 of your total engagements you've been involved with

1 involve iPhones?

2 MR. JESSEN: Go ahead, if you can
3 understand it.

4 A. I understand the question. It's very
5 difficult to answer, because it involves an estimate
6 of an inventory of all the cases that I have worked
7 on or otherwise coordinated the work for,
8 supervised. And I think that the case that I
9 referenced before involving deleted text messages
10 has been a major case that I have devoted a lot of
11 time to in the past year or two.

12 So in the most recent time frame of the
13 past year or two, it has been a significant
14 percentage. But going back in time before that, it
15 diminishes because there were simply fewer iPhones
16 out there.

17 Q. I'm not asking you about the amount of
18 your time but just the number of the engagements,
19 the engagement history. Do you have an opinion as
20 to what proportion of your engagements that you'd
21 been involved with involved related to iPhones?

22 A. I can only guess. I can't speculate on
23 that. I don't know.

24 Q. Besides the text message case that you
25 referred to for the Department of Justice, are there

1 any other cases, besides the present engagement and
2 that one, that you were involved with that involve
3 iPhones?

4 MR. JESSEN: Objection. Asked and
5 answered and misleading. You can answer.

6 A. Yes. Other cases I have worked with
7 have involved iPhones.

8 Q. You're presently working on? Your
9 present caseload?

10 MR. JESSEN: That's different from the
11 question you asked him, but if you want to change
12 it, fine.

13 Q. He understands it. And he answered yes.
14 He answered yes. And then I said -- and then I
15 asked presently, you know. He said yes. Then I
16 said, okay, presently are there any involved -- are
17 there any others besides your current engagement and
18 the one involving the Department of Justice that
19 relate to iPhones.

20 A. Okay. At the moment I am heavily
21 involved in the two cases that we have described,
22 and I have supervisory responsibilities over other
23 examiners who are themselves conducting the work on
24 myriad other cases, which are generally smaller
25 cases, either by the amount of evidence or, you

1 know, the duration of the case.

2 And it is certainly true that a
3 reasonable percentage of those other cases where I
4 am not doing the direct forensic analysis but rather
5 supervising, providing guidance, and, you know, sort
6 of QC oversight on, do involve iPhones.

7 Q. You refer to "other smaller cases." Do
8 you consider this a larger case?

9 A. It's occupied a fair amount of my time
10 recently. Yeah.

11 Q. Is it a significant case to you in your
12 current workload?

13 A. I am devoting the full day today in
14 deposition, so I would answer yes.

15 Q. Looking through paragraphs 8 through 12
16 -- I'm sorry -- 8 through 11 of your declaration, is
17 your basis for those paragraphs anything besides
18 your own personal work experience with the iPhone?

19 MR. JESSEN: Obviously feel free to take
20 your time and read those.

21 A. With respect to paragraph 8, I have
22 already answered that that paragraph is based on my
23 personal and professional experience.

24 The same is true for paragraph 9. And
25 the same is true for paragraphs 10 and 11 with the

1 additional observation that paragraph 11 is where I
2 introduce the concept of the application programming
3 interface or the API.

4 And I would note that my review of the
5 UI device class, the publicly-available website --
6 web page that we already referenced, informed, I
7 believe was your question, my understanding.

8 Q. Okay. And with respect, then, to -- is
9 it accurate to state that paragraphs 11, 12, and 13
10 are based upon your own professional work experience
11 and informed by that particular web page that you
12 just cited to?

13 A. Yes.

14 Q. Do you know whether anyone at Apple or
15 affiliated with Apple reviewed paragraphs 8 through
16 13 or the information contained in paragraphs 8
17 through 13 to determine their accuracy?

18 A. I have no idea.

19 Q. Directing your attention to paragraph 15
20 of your declaration, is your understanding in that
21 paragraph based upon any information besides your
22 own personal experience and the reading of the
23 complaints in this action?

24 A. I read the complaints in this action. I
25 also discussed the case, as you might expect, with

1 management, would suggest that these programs do
2 change over time, and that getting into addressing
3 the question of what software exists on those
4 servers would require essentially deep code review
5 and cooperation from all of the parties involved,
6 which, given the general understanding of the scope
7 of work -- my understanding of the scope of work we
8 had to do, was just not feasible for this case.

9 Q. Even if the server programs that were
10 used by the tracking companies or by the app
11 developers are now down, wouldn't a dynamic analysis
12 show the HTTPS req -- HTTPS requests going out to
13 them?

14 A. I'm not sure I understood the first part
15 of your question. Even if --

16 Q. The server programs we're talking about.
17 You just used the term "server program."

18 A. Yes.

19 Q. For the third parties or for the app
20 developers. So even if those server programs that
21 were used by the tracking companies are now changed
22 or down, or however you want to characterize it,
23 even under those circumstances you describe it,
24 wouldn't the dynamic analysis show the HTTP and
25 HTTPS requests going out to them?

1 A. Are you referring to a dynamic analysis
2 of the current version that we have to test now?

3 Q. I'm stating that just looking at the --
4 just looking at the single variable of the server
5 programs -- okay?

6 A. Okay.

7 Q. So making the assumption that you had
8 the correct app version and the correct iOS version.

9 A. Or more accurately, all correct app and
10 iOS versions that might have been in use over a
11 broad period of time.

12 Q. Well, I'm saying -- I'm saying take any
13 -- take one of the particular apps so we're not, you
14 know, trying to complicate things here.

15 If the server programs that were used by
16 a tracking company are now down or changed, --

17 A. Mm-hmm.

18 Q. -- and if the iOS and the particular app
19 that was being analyzed were versions that were in
20 place during the class period, wouldn't a dynamic
21 analysis show the HTTP or HTTPS requests going out
22 to the third-party server?

23 A. By HTTP or HTTPS request, you say the
24 HTTPS request, and that's important, because the
25 request that might hypothetical -- this is a

1 hypothetical situation you're describing. And in
2 this hypothetical, there are requests that might go
3 out in testing that we perform today is in no way
4 reliable as a way to recreate any requests that
5 might have gone out at an earlier point in time.

6 Because there's another factor involved,
7 and that's how I test the program today and the
8 actions that I take with that program can't
9 necessarily be relied upon as a recreation of what
10 Mr. Chiu or Mr. Dwyer did at any of the various
11 earlier points in time.

12 So the observation, the mere observation
13 of such a request doesn't inform or speak in any
14 useful way to the forensic analysis that I would
15 need to perform in order to assess whether the
16 claims you make of historical transmissions are
17 valid. Which is why instead we did static analysis
18 and found that the majority of the claims are not
19 supported by the evidence.

20 Q. What is your basis for believing that
21 all or any HTTP or HTTPS requests are dependent upon
22 the specific actions of the user in that app?

23 A. Well, there were countless apps that do
24 countless things. And each of the apps that is --
25 is designed -- including the many apps that are not

1 named in your Complaint -- have myriad uses or ways
2 that people can use them. So the specific requests
3 that may or may not be triggered by certain user
4 actions I think will also be myriad in number.
5 So the specific -- so I think it's -- I
6 think it's just a reasonable understanding that
7 complicated programs with multiple uses may generate
8 different network traffic based upon how they're
9 used, which is another reason why dynamic analysis
10 wouldn't be a feasible way of assessing historical
11 transmission.

12 Q. When you say the word "may," that the
13 program may generate different network traffic, but
14 wouldn't one have to look at the specific outcome of
15 the dynamic analysis and the particular requests to
16 see if those requests are dependent upon user
17 activity?

18 A. If I were doing some sort of analysis of
19 all of the different functions of a particular app,
20 that might be a useful exercise. But that exercise
21 doesn't inform what my task and scope was in this
22 case, which was a focus on historical data.

23 Q. What was it about your task that would
24 not make that useful? How is it that you define the
25 engagement that would -- how is it that you define

1 in your last answer you defined the engagement by
2 saying even if the HTTP or HTTPS requests were to
3 show -- to show requests going out to the servers
4 for information, blah, blah, blah.

5 A. Mm-hmm.

6 Q. You say, well, it doesn't matter because
7 that was not what my engagement was.

8 So how is it that you're defining your
9 engagement that makes it that that doesn't matter?

10 A. Okay. So the question is how am I --
11 how did we -- how did we define the question that we
12 had to answer?

13 Q. Yes.

14 A. The question we had to answer in the
15 case of the Chiu and Dwyer phones is what evidence
16 exists on the iPhones that were provided for our
17 analysis that supports the specific claim -- the
18 specific allegations made in the complaint of
19 specific data elements being transmitted
20 historically by specific apps on specific phones to
21 specific third parties.

22 That was what our -- the scope and
23 definition of our forensic analysis was.

24 Q. But there are circumstances in which a
25 dynamic analysis may enlighten or provide additional

1 looked at the application-specific data on Dwyer
2 iPhone, and we also reviewed information and
3 publicly-available web pages for Mr. Dwyer's Pandora
4 account.

5 In the documents we have produced to
6 you, we have screenshots of that available
7 information that we saw and reviewed. And in our
8 review of the various dates recorded and displayed
9 in those web pages, we see that the earliest known
10 reference of use in the publicly-available web pages
11 is July 7th, 2012.

12 Now, furthermore, we also looked at
13 operating system information in the form of a
14 database. There's an iOS database called the AD
15 data store database, which records information about
16 specific instances when certain apps are run.

17 What we found in reviewing that
18 document, the output of which I believe also was
19 produced to you, is that the only references in the
20 forensic evidence available to us of use by that
21 particular -- by Mr. Dwyer of that particular app
22 occurred on two days, July 7th and July 8th. And
23 furthermore, the database in question records the
24 number of minutes, total minutes of usage.

25 And we found that Mr. -- Mr. Dwyer used

1 the app on his phone, according to this data, for
2 approximately 13 and 8 minutes on those two
3 respective dates.

4 Q. Where does the data come from in the AD
5 data store database?

6 A. It comes from the iOS operating system.

7 Q. Well, and how is the data reset inside
8 of that database?

9 A. What do you mean by "reset"?

10 Q. What events cause the entries to -- the
11 prior entries to reset to look as if there hasn't
12 been any prior usage?

13 A. I don't -- I don't know. I think that
14 that is a question for Apple. I can tell you that
15 in my experience performing forensic analyses on
16 iPhones, the AD data store database covers a limited
17 period of time and isn't a full audit of all app
18 usage over time.

19 Q. And what's the basis of your
20 understanding of how the ADD -- AD data store
21 database works?

22 A. How it works. I have an understanding
23 that the -- the iOS system --

24 Q. No, no. I'm not asking what your
25 understanding. I'm not asking how it works. I'm

1 asking upon what is your understanding of how it
2 works based?

3 A. Oh, it's based on my experience in
4 multiple forensic analyses of iOS systems.

5 Q. Have you -- can you point to any
6 literature that you've read regarding the -- how
7 that database?

8 A. No.

9 Q. Did you review anything on the developer
10 database for the usage of that database or the
11 ability or means to reset the data contained
12 therein?

13 A. No.

14 Q. Are you aware of whether or not that
15 data -- whether the data store database resets when
16 there's an update to an application?

17 A. I don't know for certain.

18 Q. What, in your experience, what is the
19 length of -- the limited length of time as you
20 described it that the AD data store database
21 contains usage information?

22 A. That's a difficult question to answer
23 because it requires recalling the specific ranges of
24 time covered in different AD data store databases
25 that I have reviewed on different iPhones in

1 different cases over time. I don't think I could
2 give you an approximation.

3 I can tell you that in this case the
4 data available in the AD data store regarding Mr. --
5 the use on Mr. Dwyer's iPhone of Pandora only
6 recorded activity on two days among the available
7 data in the data store database records at the time
8 of preservation and that those two dates correlate
9 very nicely with the publicly-available information,
10 which records no earlier activity of dates available
11 on public web pages before July 7th.

12 Q. Did you ask to review Mr. Dwyer's
13 testimony regarding his usage of Pandora when he
14 contends he used Pandora?

15 A. No, I did not.

16 Q. Are you aware of the update history of
17 Pandora?

18 A. On Mr. Dwyer's iPhone, the app update?

19 Q. The app update available not just on
20 Mr. Dwyer's phone, but whether on Mr. Dwyer's phone
21 or otherwise. Are you aware of the updates that
22 were provided by Pandora?

23 MR. JESSEN: Object to form.

24 Q. Do you know if Pandora was updated --
25 prior -- when the last time Pandora was updated

REPORTER'S CERTIFICATE

I, CHRISTY A. CANNARIATO, CSR #7954, RPR, CRR, Certified Shorthand Reporter, certify:

That the witness was placed under oath by me;

That the foregoing proceedings were taken before me at the time and place therein set forth;

That the foregoing is a true and correct transcript of my shorthand notes so taken;

That the witness or other party communicated to me before the close of the deposition the wish to reserve the right to review the transcript and make corrections, if any, within 30 days pursuant to FRCP 30(e)(2);

Dated this 22nd day of January, 2013.

CHRISTY A. CANNARIATO, CSR #7954, RPR, CRR

NAME OF CASE:

DATE OF DEPOSITION:

NAME OF WITNESS:

Reason Codes:

1. To clarify the record.

2. To conform to the facts.

3. To correct transcription errors.

Page _____ Line _____ Reason _____

From _____ to _____

Page _____ Line _____ Reason _____

From _____ to _____

Page _____ Line _____ Reason _____

From _____ to _____

Page _____ Line _____ Reason _____

From _____ to _____

Page _____ Line _____ Reason _____

From _____ to _____

Page _____ Line _____ Reason _____

From _____ to _____

Page _____ Line _____ Reason _____

From _____ to _____

Page _____ Line _____ Reason _____

From _____ to _____